TRANSLATION

I, Masashi Hoshino, residing at 4-14-2, Shimo, Kita-ku, Tokyo, Japan, state:

that I know well both the Japanese and English languages;

that I translated, from Japanese into English, the specification, claims, abstract and drawings as filed in U.S. Patent Application No. 10/601,431, filed June 23, 2003; and

that the attached English translation is a true and accurate translation to the best of my knowledge and belief.

Dated: November 10, 2003

Masashi Hoshino

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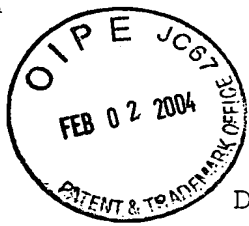
TITLE OF THE INVENTION

DATA TRANSFER METHOD, DATA TRANSFER PROGRAM, STORAGE

MEDIUM AND INFORMATION TERMINAL

CROSS-REFERENCE TO RELATED APPLICATIONS

5   This application is based upon and claims the

benefit of priority from the prior Japanese Patent

Application No. 2002-184599, filed June 25, 2002, the

entire contents of which are incorporated herein by

reference.

10   BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a data transfer

method, data transfer program, storage medium and

terminal, by which data received from a server can be

15   rewritten at a high efficiency in a short period of

time.

2. Description of the Related Art

Recent years, services that transmit a great

amount of image information and sound information at a

20   high speed through the Internet are becoming more

popular. One of the examples of the services is a

digital communication network called broadband. The

broadband is very useful, but it entails some drawbacks

such as the service fee being still very high and

25   having to prepare expensive device and software

application.

Meanwhile, document modification information such

as the size of characters and a layout, information

indicating the attribution of data, and the like are
directly embedded in a text using a markup language
such as HTML, and they are transmitted or received with
the text. It is well known that when embedding

5   information, a location where an image file is
displayed, and a link can be specified. Further, a
page containing a still image, moving image, sound and
the like can be also expressed, and such pages stored
in a WWW server on the Internet are frequently

10   transmitted and received to be browsed with use of a
WWW browser. Transmission of the data that express a
page is carried out usually in units of data
corresponding to one display image (1 frame).

Further, in order to update the data that

15   expresses a page, or to obtain the corresponding data
by accessing, for example, a sound information resource
such as for music, that relates to the image displayed
on the page, all the data that correspond to a
respective page are updated as one object, and

20   therefore new data are transmitted and received. In
the case where a display on the screen of a local
computer is partially updated, the data corresponding
to the entire display image (1 whole frame) that
contains the portion to be updated, are transmitted and

25   received between the local computer and a remote
computer (server). In the above-described conventional
technique, even if data to be updated or to be newly

obtained is merely a part of the data corresponding to one entire display image (1 whole frame), the data of that entire display image (1 whole frame) are transmitted and received in any case. In this manner,

5   a great amount of data that contains data items that correspond to a portion need not be changed, which therefore need not be transmitted or received, is transferred anyway, and thus its transmission line is occupied wastefully. Further, it takes a considerable

10   amount of time to be prepared for the transmission and reception of the data.

In extreme cases, while browsing data on the Internet with use of the WWW browser, for example, each time some kind of an event is created with regard

15   to one display image (1 frame) of a terminal by pressing on a key, moving of the mouse, clicking on an operation button or the like, the transmission and reception of all the data of the image always occur. As a result, the efficiency for transmission and

20   reception of necessary data becomes poor and in many cases, the response property is not satisfactory for the users.

BRIEF SUMMARY OF THE INVENTION

According to a first aspect of the present

25   invention, there is provided a data transfer method comprising:

defining to divide a display image of monitor

applied to a processing terminal on a user side into a plurality of frames, the divided frames being defined to include at least a first group frame and second group frame, the first group frame being defined such

5   that occurrence of an event corresponding to a mark or a marked indicator in a display region of the monitor is recognizable, and the second group frame being defined such that when data corresponding to the event that occurs in connection with the first group frame,

10   are transferred from the server, thus received data are stored in the storage as the data for the second group frame; substantially limiting the data to those corresponding to information specified based on the event that occurred in connection with the first group,

15   transferring thus limited data from the server as data for the second group frame and storing the data in an applicable storage of the processing terminal; and executing renewal of an image or reproduction of sound, which corresponds to the event in connection with the

20   first group frame, with the data stored in the storage as the data for the second group frame.

According to a second aspect of the present invention, there is provided a data transfer program to be realized on a computer to execute: a function of

25   defining to divide a display image of monitor applied to a processing terminal of a user into a plurality of frames, of these divided frames, a first group frame as

such that occurrence of an event corresponding to
a mark or a marked indicator in a display region of the
monitor is recognizable, and a second group frame as
such that when data corresponding to the event that

5   occurs in connection with the first group frame, are
transferred from the server, thus received data are
stored in the storage as the data for the second group
frame; and a function of substantially limiting the
data to those corresponding to information specified

10   based on the event that occurred in connection with the
first group, transferring thus limited data from the
server as data for the second group frame, and storing
them in an applicable storage of the processing
terminal, and a function of executing the renewal of an

15   image or reproduction of sound or the like, which
corresponds to the event in connection with the first
group frame, with the data stored in the storage as the
data for the second group frame.

       According to a third aspect of the present

20   invention, there is provided a computer-readable
recording medium that stores data transfer program to
be realized on a computer to execute: a function of
defining to divide a display image of monitor applied
to a processing terminal of a user into a plurality of

25   frames, of these divided frames, a first group frame as
such that occurrence of an event corresponding to a
mark or a marked indicator in a display region of the

monitor is recognizable, and a second group frame as such that when data corresponding to the event that occurs in connection with the first group frame, are transferred from the server, thus received data are stored in the storage as the data for the second group frame; and a function of substantially limiting the data to those corresponding to information specified based on the event that occurred in connection with the first group, transferring thus limited data from the server as data for the second group frame, and storing them in an applicable storage of the processing terminal, and a function of executing the renewal of an image or reproduction of sound or the like, which corresponds to the event in connection with the first group frame, with the data stored in the storage as the data for the second group frame.

According to a fourth aspect of the present invention, there is provided an information terminal comprising: a display region defining function unit configured to define to divide a display image of monitor applied to a processing terminal of a user into a plurality of frames, of these divided frames, the first group frame as such that occurrence of an event corresponding to a mark or a marked indicator in a display region of the monitor is recognizable, and the second group frame as such that when data corresponding to the event that occurs in connection with the first

group frame, are transferred from the server, thus
received data are stored in the storage as the data for
the second group frame; and a data transfer control
unit configured to substantially limit the data to

5 those corresponding to information specified based on
the event that occurred in connection with the first
group, transfer thus limited data from the server as
data for the second group frame, store them in an
applicable storage of the processing terminal, and

10 execute the renewal of an image or reproduction of
sound or the like, which corresponds to the event in
connection with the first group frame, with the data
stored in the storage as the data for the second group
frame.

15 Advantages of the invention will be set forth in
the description which follows, and in part will be
obvious from the description, or may be leaned by
practice of the invention. Advantages of the invention
may be realized and obtained by means of the

20 instrumentalities and combinations particularly pointed
out hereinafter.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING
The accompanying drawings, which are incorporated
in and constitute a part of the specification,

25 illustrate embodiments of the invention, and together
with the general description given above and the
detailed description of the embodiments given below,

serve to explain the principles of the invention.

FIG. 1 is a diagram showing the structure of an information providing system;

FIG. 2 is a flowchart illustrating the process of transmitting contents;

FIG. 3 is a flowchart illustrating the operation of displaying an image of contents;

FIG. 4 is a diagram illustrating an image of contents;

FIG. 5 is a flowchart illustrating the operation of an operation input accepting unit based on an operation input made by a user;

FIG. 6 is a flowchart illustrating the operation of extraction of requested data on the server side;

FIG. 7 is a flowchart illustrating the output operation to an input/output device based on received data; and

FIG. 8 is a diagram illustrating an image of contents.

DETAILED DESCRIPTION OF THE INVENTION

FIG. 1 is a diagram showing the structure of an information providing system to which the present invention is applied.

This information providing system includes a service providing server 2 (to be called "server 2" hereinafter) connected to a communication network 1, and a plurality of user terminals 3.

In the method of the present invention that is applied to the information providing system, an image display of the monitor applied to a user terminal 3, which is a processing terminal on the user side is divided into a plurality of frames when a display image is defined.

When defining of the divided frames, these frames are defined to include at least a first group frame and second group frame, the first group frame being defined such that occurrence of an event corresponding to a mark or a marked indicator in a display region of the monitor is recognizable, and the second group frame being defined such that when data corresponding to the event that occurs in connection with the first group frame, are transferred from the server, thus received data are stored in the storage as the data for the second group frame. Then, the data is substantially limited to those corresponding to information specified based on the event that occurred in connection with the first group, and thus limited data is transferred from the server as data for the second group frame and stored in an applicable storage of the processing terminal. With the data stored in the storage as the data for the second group frame, renewal of an image or reproduction of sound or the like, which corresponds to the event in connection with the first group frame is executed.

Note that the first frame that will be later explained is an example of the above-described first group frame, and the second frame that will be later explained is an example of the above-described second group frame.

The server 2 is an information processing terminal such as a computer owned by a service provider that provides transaction services.

On the other hand, the user terminal 3 is an information processing terminal set up such that it can be arbitrarily operated by a user who wishes to receive information providing services. The user terminal 3 is provided with an input/output device 4 designed to carry out inputting/outputting of information between the user and the terminal, and a speaker 5 that can output sounds.

The server 2 includes an input/output control unit 10, a data request accepting unit 11, a sound data editing unit 12, an image data editing unit 13, a data transmitting unit 14 and a contents data memory 15. The contents data memory 15 is provided in a section of a storage within the server 2 or connected to the server 2 from outside.

The input/output control unit 10 is an interface used to make homepages open to the public on a communication network 1, and to receive various information from the user terminal 3 and exchange

various kinds of information. The data request
accepting unit 11, upon reception of an information
transmission request from the user terminal 3,
initiates the sound data editing unit 12 and image data

5   editing unit 13 in compliance with the contents of
the request. The sound data editing unit 12 extracts
and edits sound data to be transmitted to the user
terminal 3, and then sets thus edited sound data as
transmission data. The image data editing unit 13

10   extracts and edits image data to be transmitted to the
user terminal 3, and then sets thus edited image data
as transmission data. The data transmitting unit 14
transmits thus edited sound data and image data to the
user terminal 3.

15   The contents data memory 15 stores contents
provided for each types of transaction services.
The contents data memory 15 includes a frame division
code memory 16, a sound code memory 17, a sound data
memory 18, an image code memory 19 and an image data

20   memory 20.

The frame division code memory 16 stores a frame
division code 16a that designates a region to display
the contents of services provided, to the input/output
device 4 of the user terminal 3.

25   The sound code memory 17 stores a sound
reproduction control menu code 17a and a sound
reproduction code 17b. The sound reproduction control

menu code 17a is an instruction code used to display

menu information for a user to select a desired sound.

The sound reproduction code 17b is an instruction code

used to reproduce the sound via the speaker 5 of the

5   user terminal 3.

The sound data memory 18 stores sound data. There

are a plurality of sound data prepared for each of the

contents, and they are associated with the respective

content such as to be selected via the sound

10   reproduction control menu code 17a. That is, the sound

reproduction control menu code 17a includes a file ID

of each sound data to be used. The sound data is

subjected to a process based on the sound reproduction

code 17b and reproduced as a sound.

15   The image code memory 19 stores an image edit

control menu code 19a and an image edit code 19b.

The image edit control menu code 19a is an instruction

code used to display menu information for a user to

select a desired image. The image edit code 19b is

20   an instruction code used to display the image on

the input/output device 4 of the user terminal 3.

The image data memory 20 stores image data. There

are a plurality of image data prepared for each

content, and they are associated with the respective

25   content such as to be selected via the image edit

control menu code 19a. That is, the image edit control

menu code 19a includes a file ID of each image data to

be used.   The image data is subjected to a process

based on the image edit code 19b and displayed as

an image.

On the other hand, the user terminal 3 includes

an input/output control unit 25, an operation input

accepting unit 26, a data request transmitting unit 27,

a received data accepting unit 28, a sound data

processing unit 29, an image data processing unit 30,

a sound outputting unit 31 and a data buffer unit 35.

The data buffer 35 is provided in a section of

a storage within the user terminal 3 or connected to

the terminal from outside.

The input/output control unit 25 is an interface

used to receive data transmitted from the server 2 and

exchange various types of information.   The operation

input accepting unit 26, upon receiving an operation

input from the input/output device 4, specifies

necessary data.   The data request transmitting unit 27

requests the server 2 to transmit the specified data.

The received data accepting unit 28 accepts the

data transmitted from the server 2 and initiates the

sound data processing unit 29 or the image data

processing unit 30 in compliance with the contents of

the data.   The sound data processing unit 29 converts

the received sound data, and outputs it to the speaker

5 via the sound outputting unit 31.   The image data

processing unit 30 extracts an image desired by the

user out of the image data received, and displays it on the input/output device. The data buffer unit 35 stores the sound data and image data received from the server 2 via the communication network 1.

Next, the operation of an information providing system will now be described.

A user who wishes to receive provided services requests the display of the contents through the input/output device 4. The operation input accepting unit 26 generates data of requesting the transmission of contents in reply to an operation made by the user, that is, an occurrence of an event. The transmission request data is formed to contain the type of the contents and the ID number of the user. Then the data request transmission unit 27 transmits the request data to the server 2.

In the server 2, the data request accepting unit 11 is initiated and thus the contents requested by the user terminal 3 are transmitted.

FIG. 2 is a flowchart of the transmission process in the server 2.

In Step S1, the data request accepting unit 11 reads out the ID number of the user from the transmission request data received, and authenticate the ID number. In other words, the data request accepting unit 11 checks if the ID number is admitted or not, and if admitted, the process can proceed from

that point on.

In Step S2, the data request accepting unit 11 specifies the type of the contents requested based on the transmission request data received. In Step 3, the data request accepting unit 11 searches through the contents data memory 15 for the data corresponding to the specified contents, and sets an applicable frame division code 16a as transmission data. When the frame division code 16a is received by the user terminal 3, the form of the frame division of the displayed image is defined based on the frame division code 16a. The frame division code 16a serves as an instruction for dividing the image into, for example, two frames.

In Step S4, the sound data editing unit 12 and image data editing unit 13 edit the first frame set on the display image of the user terminal 3, and therefore necessary sound reproduction control menu code 17a and image edit control menu code 19a are extracted and set as transmission data together with other display codes (for example, the pull-down menu).

Of the two frames set on the display image of the user terminal 3, the second frame is not designed to display any indications within its region, but it is a region set to obtain data used to execute editing, which will be explained later. Therefore, the second frame is set such as not to be seen by the user. In Step S5, an empty document containing only a code

that set the height of the frame to 0, a communication

code between the user terminal 3 and server 2 and

a code that designates the background color is set as

transmission data. In Step S6, the data transmitting

5   unit 14 adds the ID number of the user to the

transmission data, and transmits it to the user

terminal 3.

Meanwhile, in the user terminal 3, the received

data accepting unit 28 is initiated, and an image is

10   displayed on the input/output device 4 based on the

codes transmitted from the server 2.

FIG. 3 is a flowchart illustrating the operation

of displaying the contents on the user terminal 3, and

FIG. 4 is a diagram showing an example of the contents

15   image.

In Step S7, the received data accepting unit 28

divides the display on the screen into a plurality of

frames based on the above-described frame division code

received from the server 2. In the example shown in

20   FIG. 4, the display is divided into a first frame 40

and a second frame 41. The second frame, as already

described, is used as an edit frame and its height is

set to 0. Therefore, the presence of the second frame

can be recognized but it is in a hidden state. The

25   second frame functions as a work area in which data for

the processing of displaying contents and the

processing of image data and sound data are transferred

and received in reply to the occurrence of an event in the first frame.

More specifically, the data processing is carried out in the input/output controlling unit 25 based on the data in the data buffer unit 35 in which "sound control data" or "image control data" are stored. These control data are used to store programs and the like used to transmit a request to the server 2 upon recognition of the contents such as sound or image or the like selected in accordance with the frame information regarding the second frame as well as the occurrence of an event, for example, clicking on a mouse button which occurred in the first frame.

In Step S8, the received data accepting unit 28 displays an image menu in the first frame based on the image edit control menu code 19a received. In the example shown in FIG. 4, a map of Japan with image menu icons 45a to 45f each indicating a sightseeing spot and an image display region 42 are displayed on the screen.

In Step S9, the received data accepting unit 28 displays a sound menu based on the sound reproduction control menu code 17a received. In the example shown in FIG. 4, a map of Japan with sound menu icons 45a to 45f each indicating a sightseeing spot and a sound icon 43 are displayed on the screen. In this embodiment, the image menu icons and sound menu icons are displayed in common, but it is alternatively possible that they

are displayed to be separate from each other.

In Step S10, the received data accepting unit 28 displays the other indications regarding the display of the contents. In FIG. 4, a pull down menu 44 designed to assign a language used in this service is displayed.

As described, in the stage where the image indicating the contents is displayed, image data and sound data that express the entities of the image and sound associated with the displayed image are not transferred from the server 2 to the user terminal 3, but only the data expressing the image menu and sound menu, which involves a small amount of data, are transferred. With this structure, the data communication amount can be dramatically reduced as compared to the conventional method in which all the data regarding the image display (frames) are transferred (transmitted) at one time.

Next, the operation of the information providing system will now be described with reference to the contents display shown in FIG. 4.

FIG. 5 is a flowchart illustrating the operation of the operation input accepting unit 26 based on the input operation by the user.

In Step S12, the user selects a language to be used in this contents display from the pull-down menu 44. Then, the contents display is expressed in the selected language and the voice that is associated

with this display is generated in the selected
language.

In Step S13, when the user superimposes the mouse
pointer on an icon or clicks the mouse on the icon, the
event is made to occur, for example, using the event
attribute of the tag, and the operation input accepting
unit 26 identifies the icon selected with the mouse.
In Step S14, the operation input accepting unit 26
checks if the icon is associated with any sound or not.
In Step S14, if it is "Yes", that is, there is an
associated sound, the operation proceeds to Step S15,
in which the operation input accepting unit 26 acquires
a sound data file ID, which is the information for
specifying the sound data.

In Step S16, the operation input accepting unit 26
checks if the icon is associated with any image or not.
In Step S16, if it is "Yes", that is, there is an
associated image, the operation proceeds to Step S17,
in which the operation input accepting unit 26 acquires
an image data file ID, which is the information for
specifying the image data.

In Step S18, the operation input accepting unit 26
sets the sound data file ID and image data file ID as
the event information together with the ID number of
the user and the kind of language. Then, in Step S19,
the data request transmitting unit 27 is initiated.
The data request transmitting unit 27 transmits the

event information using the communication code set to
correspond to the second frame. Note that the event
information may be the address designating the image
data and/or sound data stored in the server 2.

5   The server 2 extracts the applicable sound data or
image data based on the event information transmitted
from the user terminal 3.

       FIG. 6 is a flowchart illustrating the operation
of extracting request data in the server 2.

10   In Step S21, the data request accepting unit 11
extracts the ID number of the user from the received
information, and authenticate the ID number. In other
words, the data request accepting unit 11 checks if the
ID number is admitted or not, and if admitted, the

15   process can proceed from that point on.

       In Step S22, the data request accepting unit 11
extracts the file ID of the requested data from the
received information. In Step S23, if it is "Yes",
that is, if there is the file ID of the sound data, the

20   sound data editing unit 12 is initiated.

       In Step S24, the sound data editing unit 12
searches through the contents data memory 15 for the
data specified by the sound data file ID, and extracts
the sound data of the specified language from the sound

25   data memory 20. In Step S25, the sound data editing
unit 12 extracts a sound reproduction code 17b from
the sound code memory 17, and in Step S26, the sound

data and sound reproduction code are set as the transmission data.

The sound reproduction code 17b is a code for restoring sound data that has been compressed by a certain format into a reproducible form as sound, and reproducing it. That is, the sound reproduction code 17b is essential to reproduce sounds in the user terminal 3.

In Step S27, the data request accepting unit 11 checks if there is a file ID of image data in the received information. In Step S27, if it is "Yes", that is, if there is the file ID of the image data, the image data editing unit 13 is initiated.

In Step S28, the sound data editing unit 13 searches through the contents data memory 15 for the data specified by the image data file ID, and extracts the image data from the image data memory 20. In Step S29, the image data editing unit 13 extracts an image edit code 19b from the image code memory 19, and in Step S30, the image data and image edit code are set as the transmission data.

The image edit code 19b is a code for restoring image data that has been compressed by a certain format into a displayable form as image, and displaying it. That is, the image edit code 19b is essential to execute the process for displaying images in the user terminal 3.

After the above-described processing, the data transmitting unit 14 adds the ID number of the user to the transmission data and transmits it to the user terminal 3 in Step S31.

The user terminal 3 carries out the sound reproduction process and image display process based on the received data.

FIG. 7 is a flowchart illustrating the output operation of the user terminal 3 to the input/output device 4.

In Step S41, the received data accepting unit 28 checks if image data or sound data is contained in the information received from the server 2. In Step S42, if it is "Yes", that is, if there is image data contained in the information, the received data accepting unit 28 initiates the image data processing unit 30.

In Step S43, the image data processing unit 30 stores the image data in the data buffer unit 35 in a region of the storage, which corresponds to the second frame. Then, in Step S43, an image edit code 19b extracted from the above-described transmission data sent out from the server 2 is read as a code corresponding to the second frame 41 set to be hidden underneath. In Step S45, the image edit code 19b is executed, and thus a new image display that corresponds to the event information of the first frame is started.

By this process, an image that corresponds to the clicked one of the before-mentioned image menu icons 45a to 45f is displayed on the image display region 42 in the contents display shown in FIG. 8.

In Step S46, if it is "Yes", that is, if the sound data is contained in the received information, the audio data processing unit 29 is initiated.

In Step S47, the audio data processing unit 29 stores the audio data in the above-described data buffer unit 35. Then, in Step S48, a sound reproduction code 17b extracted from the above-described transmission data sent out from the server 2 is read as a code corresponding to the second frame 41 set to be hidden underneath. In Step S49, the sound reproduction code 17b is executed and thus the sound data is converted into an ordinary data format. Thus converted data is sent to the sound outputting unit 31 and the reproduction of the data as sound is started via the speaker 5. Further, at the same time as the reproduction of the sound, a sound operation menu 47 is displayed on the contents display. The sound operation menu 47 is formed based on the codes contained in the sound reproduction code 17b.

The user, when clicking a sound icon 43, can hear the explanations for the specifications of the contents display, how to use it, etc. in voice. Further, when the user clicks any one of the menu icons 45a to 45f,

an image of its sightseeing spot is displayed in the
image display region 42, and the information of the
sightseeing spot is played back in voice from the
speaker.   In this manner, the user can listen to the
explanation in voice output from the speaker while
monitoring the image of the sightseeing spot of the
clicked icon.   Thus, as compared to the case of merely
reading the information expressed in characters, more
accurate information can be obtained more effectively.

Further, since the sound operation menu 47 is
provided, the user is able to repeatedly reproduce the
sound data that is stored in the data buffer unit 35.

In the case where both of image and sound are to
be output, it is desired that the image is first
output, and the sound is then reproduced after the
image has been displayed.   In this case, it is
alternatively possible to take such a structure that
information that instructs the display of the image
before the reproduction of the sound is received from
the server 2.   For example, by adding the data
indicating the order of reproduction to the information
to be transmitted from the server 2, the above-
described structure can be realized.

In this embodiment, an object as well as an
instruction code for executing the object are
transmitted from the server 2, and the instruction code
is stored in a memory unit (storage) corresponding to

the second frame, to be executed. In this manner, it
is not necessary to transmit all the contents to be
displayed on one frame unlike the conventional
technique, but when the user needs data, only the data
5   needed is transmitted from the server 2, thereby making
it possible to significantly shorten the transmission
time. Therefore, the user is able to obtain
information without caring about the waiting time.

According to the present invention, of a plurality
10   of frames, a pre-designated certain frame is used and
an instruction code is stored in a memory unit
(storage) that corresponds to its frame portion, to be
executed. In this manner, the present invention
provides a solution to the drawback of the conventional
15   technique while maintaining the conformity with the
present standards, and the object of solving the
technique can be easily and certainly achieved with the
present invention.

Further, in this embodiment, the second frame is
20   set in a hidden state, and therefore the display region
of the first frame will not be significantly eroded or
the presence of the second frame will not be noticed by
the user.

In the above-described embodiment, the explanation
25   was made in connection with the case where the second
frame is defined as a single frame; however it is
alternatively possible to take such a structure that

the second frame is defined as containing a plurality

of sub-frames and each of these sub-frames is further

defined as being independent from each other and having

functions corresponding to those of the second frame.

5   In the just-described case, if, for example, an

event occurring in connection with the first frame is

of a menu for the information voice in Japanese, the

data expressing the information voice in Japanese is

associated with one of the sub-frames of the second

10   frame and transferred from the server 2. After the

information voice in Japanese was generated, if the

user requests the corresponding information voice in

English by causing such an event to occur with the

operation made by the user, the data corresponding to

15   the English voice information is associated with

another one of the sub-frames of the second frame, and

transferred from the server 2.

In the embodiment, a Japanese voice that was

associated with and transferred to one of the sub-

20   frames of the second frame and then temporarily stored

in a memory unit (storage) corresponding to that frame

portion can be repeatedly generated without having to

wait for the data transfer from the server each time

the Japanese voice is to be generated. Similarly,

25   an English voice that has been associated with and

transferred to another one of the sub-frames of the

second frame and temporarily stored in another memory

unit (storage) corresponding to that frame portion can be repeatedly generated without having to wait for the data transfer from the server each time the English voice is to be generated.

In the above-described variation of the embodiment, the second frame is divided into a plurality of sub-frames and each sub-frame is made to have the equivalent functions as those of the second frame. Alternatively, it is further possible to take such a structure that in place of defining divided and set frames as sub-frames, the functions respectively corresponding to the sub-frames are defined independently as the third, fourth, ... n-th frames, and these frames are made to function as the sub-frames of the second frame.

It should be noted that in this embodiment, the sound information and image information are handled; however the present invention is not limited to this form, but it can be applied to the other type of information, for example, character information. In generally, the present invention can be applied to any kind of object.

Further, the system described in connection with the above-described embodiment can be realized by making a program that is stored in a memory medium that is not shown, read in a computer.

Such a program is a data transfer program that is

to be realized on a computer to execute the followings.
That is, the display image of the monitor applied to
the processing terminal of the user is divided into a
plurality of frames. The program is designed to make
the computer to execute a function of defining, of
these divided frames, the first group frame as such
that occurrence of an event corresponding to a mark or
a marked indicator in a display region of the monitor
is recognizable, and the second group frame as such
that when data corresponding to the event that occurs
in connection with the first group frame, are
transferred from the server, thus received data are
stored in the storage as the data for the second group
frame, and a function of substantially limiting the
data to those corresponding to information specified
based on the event that occurred in connection with the
first group, transferring thus limited data from the
server as data for the second group frame, and storing
them in an applicable storage of the processing
terminal, and a function of executing the renewal of
an image or reproduction of sound or the like, which
corresponds to the event in connection with the first
group frame, with the data stored in the storage as the
data for the second group frame.

    The main body of the user terminal 3 serving as
an information processing terminal corresponds to
the above-mentioned computer.

Here, the memory medium of the present invention can be of any storing format as long as it can store the program and read by a computer.

Further, the memory medium of the present invention includes such a case where there may be a plurality of memory media involved to execute the process of the described embodiment and the media may be of any structure.

The information processing terminal that can operates under the control of the above-described program functions as a device comprising a display region defining function unit of defining, of these divided frames, the first group frame as such that occurrence of an event corresponding to a mark or a marked indicator in a display region of the monitor is recognizable, and the second group frame as such that when data corresponding to the event that occurs in connection with the first group frame, are transferred from the server, thus received data are stored in the storage as the data for the second group frame, and a data transfer control unit of substantially limiting the data to those corresponding to information specified based on the event that occurred in connection with the first group, transferring thus limited data from the server as data for the second group frame, storing them in an applicable storage of the processing terminal, and executing the renewal of

an image or reproduction of sound or the like, which
corresponds to the event in connection with the first
group frame, with the data stored in the storage as the
data for the second group frame.

5   In the above-described device, either one or both
of the display region defining function unit and data
transfer control unit operate under the control of the
program transferred from the server. Here, the supply
of the program to the information processing terminal
10   may be carried out via the above-described information
recording medium, but it is recommended that the
program should be supplied from the server via a
transmission line in succession or all at once in
batch.

15   Additional advantages and modifications will
readily occur to those skilled in the art. Therefore,
the invention in its broader aspects is not limited to
the specific details and representative embodiments
shown and described herein. Accordingly, various
20   modifications may be made without departing from the
spirit or scope of the general inventive concept as
defined by the appended claims and their equivalents.